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## ALL OPTICAL LOGIC GATES

### Cross-Reference To Related Applications

This application claims the benefit of U.S. Provisional Patent Application Serial No. 60/461,796, filed April 11, 2003, entitled "All Optical Logic Gates", and is a continuation in part of US Patent Applications Serial Numbers 10/404,077, now U.S.P. No. 6,795,626, and 10/404,140 filed April 2, 2003 entitled "Optical Threshold Devices and Methods". The latter application claims the benefit of US Provisional Patent Application Serial No. 60/405,697, filed August 22, 2002, entitled "Streaming signal control system for digital communications" now filed as four regular US Patent Applications Serial Numbers 10/640,035; 10/640,035; 10/640,017 and 10/640,040 filed August 14, 2003, entitled "All Optical Decoding Systems For Decoding Optical Encoded Data Symbols Across Multiple Decoding Layers", "All Optical Decoding Systems For Optical Encoded Data Symbols", "All Optical Cross Routing Using Decoding Systems For Optical Encoded Data Symbols" and "Compact Optical Delay Lines", respectively.

### Field of Invention

The invention relates to optical logic gates, optical communication devices and systems, optical computing devices and systems and in particular to optical AND gates, NAND gates and their combinations used to perform optical logic functions and gates.

### Background of the Invention

In the field of optical communication and optical computing there is a strong demand for optical gates capable of performing very fast execution of logic functions,